

**WHAT IS CLAIMED IS:**

- 1           1.     An interface circuit, comprising:  
2           a first port for providing an IDE interface with a host computer;  
3           a second port for providing an IDE interface with a data storage device; and  
4           a control circuit, operatively coupled between the first and second ports, that sends an  
5           invalid command rather than a selected IDE command to the second port in  
6           response to receiving the selected IDE command at the first port.
- 1           2.     The interface circuit of claim 1, wherein the selected IDE command is from the  
2           group consisting of a write, media lock, media unlock, sleep, standby, download microcode and  
3           packet command.
- 1           3.     The interface circuit of claim 1, wherein the selected IDE command is a write  
2           command.
- 1           4.     The interface circuit of claim 1, wherein the control circuit sends the invalid  
2           command to the second port in response to any of a plurality of selected IDE commands received at  
3           the first port and prevents the second port from receiving any of the selected IDE commands.
- 1           5.     The interface circuit of claim 4, wherein two of the selected IDE commands are  
2           from the group consisting of a write, media lock, media unlock, sleep, standby, download  
3           microcode and packet command.
- 1           6.     The interface circuit of claim 4, wherein one the selected IDE commands is a write  
2           command.
- 1           7.     The interface circuit of claim 1, wherein the invalid command is a reserved IDE  
2           command.
- 1           8.     The interface circuit of claim 7, wherein the reserved IDE command is 01h.

1           9.     The interface circuit of claim 1, wherein the control circuit sends a read command  
2     received at the first port to the second port.

1           10.    The interface circuit of claim 1, wherein the control circuit sends each of a plurality  
2     of IDE commands received at the first port to the second port, wherein the plurality of IDE  
3     commands includes a read command and excludes a write command.

1           11.    The interface circuit of claim 1, wherein the control circuit sends any IDE command  
2     other than a write command received at the first port to the second port.

1           12.    The interface circuit of claim 1, wherein the control circuit sends any IDE  
2     communication received at the second port to the first port.

1           13.    The interface circuit of claim 1, wherein the selected IDE command is a write  
2     command, the invalid command is a reserved IDE command, the control circuit sends each of a  
3     plurality of IDE commands that includes a read command and excludes the write command and is  
4     received at the first port to the second port, and the control circuit sends any IDE communication  
5     received at the second port to the first port.

1           14.    The interface circuit of claim 1, including an external device that permits a user to  
2     enable and disable a command-inhibit function of the control circuit, wherein when the command-  
3     inhibit function is enabled then the control circuit sends the invalid command rather than the  
4     selected IDE command to the second port in response to the selected IDE command being received  
5     at the first port, and when the command-inhibit function is disabled then the control circuit sends  
6     the selected IDE command rather than the invalid command to the second port in response to the  
7     selected IDE command being received at the first port.

1           15.    The interface circuit of claim 14, wherein the external device is a mechanical switch  
2     that the user can toggle to enable and disable the command-inhibit function.

1           16.     The interface circuit of claim 14, wherein the external device is a pair of jumper pins  
2     for which the user can insert and remove a jumper to enable and disable the command-inhibit  
3     function.

1           17.     The interface circuit of claim 1, wherein the control circuit includes a logic device  
2     and a data switch, the logic device is coupled to the lower eight data bus bits and the three address  
3     bits and the I/O write signal of the first port, the data switch is coupled to the lower eight data bus  
4     bits of the first and second ports and to the logic device, and the data switch selectively couples the  
5     lower eight data bus bits of the second port to one of the lower eight data bus bits of the first port  
6     and the invalid command in response to the logic device.

1           18.     The interface circuit of claim 1, wherein the first port is a 40-pin male IDE  
2     connector and the second port is a 40-pin female IDE connector.

1           19.     The interface circuit of claim 1, including a printed circuit board, wherein the first  
2     and second ports and the control circuit are mounted on the printed circuit board, and the first and  
3     second ports extend from opposing major surfaces of the printed circuit board.

1           20.     The interface circuit of claim 1, in combination with an IDE hard disk drive  
2     connected to the second port.

1           21.     A computer system, comprising:  
2     a host computer;  
3     a hard disk drive; and  
4     an interface circuit coupled between an IDE port of the host computer and an IDE port of  
5     the hard disk drive, wherein the interface circuit provides an IDE communication link between the  
6     host computer and the hard disk drive, the interface circuit sends a read command received by the  
7     host computer to the hard disk drive, thereby allowing the host computer to read from the hard disk  
8     drive, and the interface circuit sends an invalid command to the hard disk drive in response  
9     receiving a write command from the host computer, thereby preventing the host computer from  
10    writing to the hard disk drive.

1           22.     The computer system of claim 21, wherein the interface circuit includes a first 40-  
2 pin connector coupled to the IDE port of the host computer, a second 40-pin connector coupled to  
3 the IDE port of the IDE hard disk drive, a third 4-line connector coupled to a power supply port of  
4 the host computer, and a fourth 4-line connector coupled to a power supply port of the hard disk  
5 drive.

1           23.     The computer system of claim 22, wherein the first 40-pin connector is connected to  
2 an IDE ribbon cable, the IDE ribbon cable is connected to the IDE port of the host computer, and  
3 the second 40-pin connector is connected to the IDE port of the hard disk drive.

1           24.     The computer system of claim 21, wherein the interface circuit sends any command  
2 received from the host computer other than a write command to the hard disk drive, thereby  
3 allowing the host computer to instruct the hard disk drive to perform non-write operations.

1           25.     The computer system of claim 24, wherein the interface circuit sends any  
2 communication received from the hard disk drive to the host computer, thereby allowing the hard  
3 disk drive to access the host computer.

1           26.     The computer system of claim 21, wherein the hard disk drive generates an error  
2 message in response to the invalid command, and the interface circuit allows the host computer to  
3 read the error message, thereby informing the host computer that the write operation has failed.

1           27.     The computer system of claim 21, wherein the interface circuit includes an external  
2 device that permits a user to enable and disable a write-inhibit function of the control circuit,  
3 wherein when the command-inhibit function is enabled then the control circuit sends the invalid  
4 command rather than the write command to the hard disk drive in response to the write command  
5 being received from the host computer, thereby preventing the host computer from writing to the  
6 hard disk drive, and when the command-inhibit function is disabled then the control circuit sends  
7 the write command rather than the invalid command to the hard disk drive in response to the write  
8 command being received from the host computer, thereby allowing the host computer to write to  
9 the hard disk drive.

1           28.    The computer system of claim 21, wherein the control circuit defines a first set of  
2 IDE commands that includes the read command and a second set of IDE commands that includes  
3 the write command, the control circuit sends each of the first set of IDE commands received by the  
4 host computer to the hard disk drive, thereby allowing the host computer to implement the first set  
5 of IDE commands, and the control circuit sends the invalid command rather than any of the second  
6 set of IDE commands received by the host computer to the hard disk drive, thereby preventing the  
7 host computer from implementing the second set of IDE commands.

1           29.    The computer system of claim 21, wherein the invalid command is a reserved IDE  
2 command.

1           30.    The computer system of claim 21, wherein the computer system is a gaming  
2 machine.

1           31.    A method of informing a host computer that an attempted operation on a data  
2 storage device has been prevented, comprising:  
3           sending a IDE command from the host computer to a first IDE bus not connected to the data  
4           storage device;  
5           determining that the data storage device should not receive the IDE command;  
6           sending an invalid command rather than the IDE command to a second IDE bus connected  
7           to the data storage device; and  
8           sending an error message generated by the data storage device in response to the invalid  
9           command from the data storage device to the host computer via the first and second  
10          IDE buses.

1           32.    The method of claim 31, wherein the IDE command is a write command.

1           33.    The method of claim 31, wherein the host computer periodically sends another IDE  
2 command to the data storage device via the first and second buses to determine whether the data

3 storage device received the IDE command that should not have been received by the data storage  
4 device.

1 34. The method of claim 31, wherein the first IDE bus includes a ribbon cable and the  
2 second IDE bus excludes a ribbon cable.

1 35. The method of claim 31, wherein the data storage device is a hard disk drive.

1 36. A method of preventing a host computer from writing to a data storage device,  
2 comprising:  
3 sending a write command from the host computer to a first IDE bus not connected to the  
4 data storage device; and  
5 sending an invalid command rather than the write command to a second IDE bus connected  
6 to the data storage device such that when the host computer deasserts an IDE I/O  
7 write signal the data storage device recognizes the invalid command rather than the  
8 write command, thereby preventing the host computer from writing to the data  
9 storage device.

1 37. The method of claim 36, further comprising sending an error message that the data  
2 storage device generates in response to the invalid command from the data storage device to the  
3 host computer via the first and second IDE buses.

1 38. The method of claim 36, further comprising sending a read command from the host  
2 computer to the data storage device via the first and second IDE buses to determine whether the  
3 write command was recognized by the data storage device.

1 39. The method of claim 36, wherein first IDE bus includes a ribbon cable and the  
2 second IDE bus excludes a ribbon cable.

1 40. The method of claim 36, wherein the data storage device is a hard disk drive.